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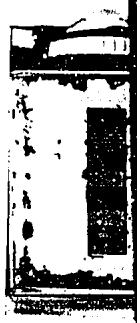

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SOURCE Informativni prirucnik o Jugoslaviji, Book 2, Sec 4-6, 1952.

ASTRONOMY OBSERVATORIES IN YUGOSLAVIA

[The following information is based on an article in Informativni prirucnik o Jugoslaviji (Information Handbook on Yugoslavia), which has been issued in sections since late 1948 by the Yugoslav Directorate for Information.]

ASTRONOMY OBSERVATORY IN BELGRADE

The Astronomy Observatory in Belgrade, founded in 1887, was known as the Provisional Observatory until 1891, when it began to function as a component part of the Central Observatory of the Upper School in Belgrade (which became Belgrade University in 1905). In 1891, a permanent observatory building was erected on a hill in the southern outskirts, the site of the present Meteorological Observatory. The Astronomy Observatory's work consisted chiefly of meteorological service for its meteorological stations throughout Serbia. It is not known when the first astronomical instruments were obtained, but it is known that in 1899 the observatory had three large instruments, a clock for standard time, two nautical chronometers, and some small instruments.

In this period, the observatory made observations of the sun and the stars so as to control watches and chronometers, a service utilized only by the seismology service. Because of insufficient competent personnel, the observatory did not do any scientific work or participate in the triangulation of Serbia.

After World War I, it was decided that the observatory would be furnished with required instruments through reparations. Between 1923 and 1928, about 30 million dinars' worth of instruments were delivered.

At the beginning of 1924, by decree of the Council of the Faculty of Philosophy, the Central Belgrade Observatory was divided into two independent establishments, the Meteorological Observatory and the Astronomy Observatory of Belgrade University.

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For some years afterward, the Astronomy Observatory was housed in a small space next to the Meteorological Observatory. A loan of 5,300,000 dinars was obtained early in 1930, and in May, construction was begun on an area of 4.5 hectares on Veliki Vracar. The main building, the storehouse, the workshop, two dwellings, the transformer station, and five separate buildings were built.

Instruments in the Observatory

In the clock room in the main building are six astronomical clocks, four of which are mechanisms of great precision and are encased under a glass bell and kept at constantly controlled air pressure. The clock room, located 9 meters below the surface, is separated on all sides from the surrounding soil by an insulation space of about 65 centimeters as a protection against small dislocations in the surface strata. Reduction in fluctuations in temperature around the clocks was achieved in 1947 with the installation of an electric thermoregulator, which limits variations in temperature to within one tenth of a degree.

A small double-refracting telescope was installed in 1945. Somewhat larger is the short-focus Zeiss astrograph, with which the observatory makes most of its photographic plates, chiefly of the minor planets. There is also a large Zeiss refracting telescope, equipped with two cameras and a Colzi prism for observing the sun.

This large telescope, one of three Zeiss refractors, equipped with a lens 650 millimeters in diameter, built for the observatories in Tokyo and Berlin-Babelsberg, is the largest instrument in the Belgrade Observatory. From its installation until today, this telescope has not yet served for any serious scientific observations, because of heavy damage it suffered during World War II. Today, it is beginning to be used for double and variable stars.

The astrogeodetic building contains four instruments for investigating changes in geographic latitude and longitude.

The meridian building, used for instructional purposes, has two small transit instruments, which were installed in 1950, and a chronograph with five pens which registers simultaneous observations of occultations on four different instruments.

Before the war, a large number of small instruments were transferred from the observatory to various establishments. A number of instruments have not yet been assembled, including a large meridian circle, a vertical circle, a small meridian circle, and a refracting telescope.

Work of the Observatory

Between 1926 and 1944, the work of the Belgrade Astronomy Observatory was characterized by making calculations and the gradual introduction of observation service.

During this period, the observatory's first publications appeared, including the Annuaire in French, an astronomical almanac, and the Godisnjak naseg neba (Yearbook of Our Heavens), published in Serbian, which was intended to popularize astronomy in Yugoslavia. The Annuaire was published for 6 years. Publication was suspended chiefly for financial reasons. The Godisnjak naseg neba appeared regularly, except for an interruption from 1942 - 1947.

Later, the observatory staff was expanded and its work extended to include small planets and comets, continuous observation of the activity of sunspots, and meteorological service.

Published mostly in French, the Bilten (Bulletin), official publication of the observatory, appeared in 1935. At the same time, the observatory began to publish material on astronomical theory in the Memoires. In 1934, the Nauticki godisnjak (Nautical Yearbook) was published by the Naval Command for the use of Yugoslav mariners, but its publication was suspended in 1941. Publication was resumed in 1949, when it was taken over by the Astrological Computation Institute of the Serbian Academy of Sciences in Belgrade.

Since 1935, the observatory has been a part of an organized service for observation of stars occulted by the moon. These observations will soon begin to be made simultaneously, being registered by the chronograph with five pens. The chronograph was built especially for that purpose in the observatory workshop.

Time service, which, until 1938, consisted of direct control of precision clocks and control over time signals only, was transferred at the end of 1938 to control through observation of stars passing through the meridian. Before this, the geographic longitude of the observatory was established with the help of the Army Historical Institute, while the geographic latitude was established only once, and that only superficially.

During the war, these services were either maintained or reduced, and a photograph service of the sun was operated for the German Army, but almost all activity was halted in 1944.

The new period in the development of the observatory began with its restoration following the liberation. The old services were gradually restored and new ones introduced. During 1947, a number of observations were carried out to determine geographic latitude and longitude. A permanent service for changes in geographic latitude and longitude began operating early in 1949.

The scientific prerequisites for a new triangulation of Yugoslavia have been created by the acquisition of experience and the scientific staff required for this sort of work.

Observation of the activity of sun spots has expanded with observing projections of the sun on a white screen and following the movements of sun spots over the surface of the sun. The first tests in photographing the sun directly on film have been made. The study of small planets is operating on a somewhat reduced scale as compared to before the war.

Calculations and the issuing of publications have also been developed. Since the restoration of the observatory, the following publications have been published:

Godisnjak naseg neba za 1948 - 1952 godinu (Yearbook of Our Heavens for 1948 - 1952); Ephemeride 106 malih planeta (Ephemeris of 106 Small Planets) for 1947, 1948, and 1949; Bilten, for 1941, 1942, 1949, and 1950, in French; Saopstenja astronomska i meteoroloska (Astronomic and Meteorologic Reports), new professional publication, first appearing in 1945 (No 1-7); Memoires, /Vol/ V, with three papers on theory; and Precizno odredjivanje geografske sirine astronomske opservatorije (Precision Determination of the Geographic Latitude of the Astronomy Observatory).

The staff of the observatory has made special efforts to popularize astronomy in the postwar period. Several brochures have been published (originals and translations), and popular articles appear constantly. The Godisnjak naseg neba has been given a more popular character, and the Saopstenja is used for professional articles.

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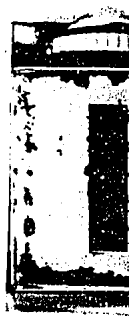

In May 1948, the Astronomy Observatory was separated from the Faculty of Natural Sciences and Mathematics; in 1950, the observatory was proclaimed an institute of the Serbian Academy of Sciences.

OTHER OBSERVATORIES IN YUGOSLAVIA

Yugoslavia has no other astronomy observatories which are scientific establishments, but it has a number of small observatories for instructional or amateur purposes or for popularization of astronomy.

Zagreb has an observatory in the Technical Faculty, which serves for instructional purposes. In addition to a portable meridian circle, obtained from the Belgrade Observatory, it has a small transit instrument and a zenith telescope, both received from the Army Geographic Institute. In addition to other work, this observatory is working on the precision determination of the geographic latitude of Maksimir and the summit of Sljeme Mountain.

Since 1903, the Croatian Natural Science Society has had a small two-instrument observatory on Popov Tornj in Zagreb. This observatory is used for popularizing astronomy. In 1950, the observatory resumed publication of the popular yearly publication Almanah Boskovic (Boskovic Almanac).

Zagreb also has a semiprivate church observatory equipped with one telescopic instrument and other equipment.

The building of a school observatory in Ljubljana, which will be furnished with a number of instruments from the Astronomy Observatory in Belgrade is planned.

The Army Geographic Institute of prewar Yugoslavia had an observatory with fixed and portable instruments, used for determining Laplace points in triangulation, but as a result of the war, nothing remains of it except the dome under which the instruments were mounted.

Many private persons have small telescopes and observe the heavens with them.

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